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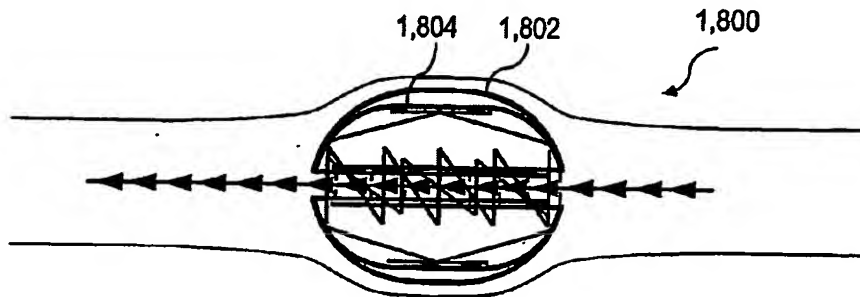
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(54) Title: TEMPERATURE RESPONSIVE SYSTEMS



(57) Abstract: A shape memory material activated device of the present invention uses a shape memory material activator to create a path through a shell wall of the device. The path through the shell wall may release a substance contained in the shell or allow a substance to enter the shell. The path may be created by fracturing, puncturing, exploding, imploding, peeling, tearing, stretching, separating, debonding, abrading or otherwise opening the shell and, may be permanent or reversible. The substance may be released in one location while the device is stationary or along a path while it is traveling, self-powered by the shape memory material activator. In addition, the substance may be delivered to an object upon contact with its surface. The self powering abilities allow these devices to be used as substance delivery devices as well as actuators, transporters, and energy conversion systems with modular characteristics and growth potential. The devices may be armed, prior to the beginning of their service life, to be placed in a state of readiness to release their substances once the path is created. Prior to arming they may be maintained at any temperature, incapable of releasing their substances. The devices according to the present invention may be used as temperature sensors or warning devices, drug delivery devices, and the like.